NOTES AND NEWS.

DR. JOS. BOEHM, professor of physiological botany in the University of Vienna and also in the College of Agriculture, and an investigator of wide reputation, died December 2, 1893, at Vienna.

DE LAMARLIERE finds[1] that, for an equal surface, the leaves developed in the sun show a greater intensity of respiration, assimilation and transpiration than those grown in shade, the well known structural differences thus having a corresponding physiological significance.

IN PRESERVING anatomical as well as herbarium material, Heinricher avoids blackening of colorless saprophytes and parasites like Monotropa and Lathraea by plunging the living plant into boiling water for about a quarter of an hour and then transferring them to alcohol or placing in a press, as desired.[2]

MUELLER-THURGAU has shown that various phenomena in cultivated grapes, currants, apples, oranges, apricots and peaches, are directly related to the number of seeds formed. The more seed formed the greater will be the weight of flesh, the slower the ripening, the greater the amount of acid and the less the sugar.

MR. O. F. COOK sailed Oct. 25th for western Africa, to make further observations and collections of the plants of that region, especially of the cryptogamic forms. He will be gone a year or more. His former voyage resulted in securing a large amount of botanical material, and the present visit is expected to yield even greater results.

MACMILLAN & Co. of New York announce for early publication a work by Prof. G. F. Atkinson, entitled, "The study of the biology of ferns by the collodion method; for advanced and collegiate students." It is to be profusely illustrated, and is designed for laboratory instruction and for reference on the development and structure of ferns.

FOR MOUNTING preparations cleared with chloral hydrate which it is desired to retain in their transparent condition, Geoffroy suggests[3] a solution of $3-4^{gm}$ pure gelatin in 100^{cc} of 10 per cent. chloral hydrate. This can be used like glycerin, with the added convenience that it hardens at the edge of the cover, so that the cover can be cemented without tedious cleaning.

QUANTITATIVE DETERMINATION of sugars by fermentation is described by A. Lasché in the *Amer. Brewer's Review* **7**: 286–288. 1893. The method is given by which the percentage of dextrose, saccharose, maltose and isomaltose in glucose can be found by use of Saccharomyces apiculatus, S. Joergensenii, and S. cerevisiæ. Two types of the latter are required, the Frohberg type and the Saar type.

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[1] Revue gén. de Bot. **4**: 481, 529. 1892.

[2] Zeits. f. Wiss. Mikros. **9**: 321–3. 1893.

[3] Jour. de Botanique **7**: 55. 1893.

DR. F. FRANCESCHI, of Los Angeles, Cal., has made a small collection of the Guadalupe Island plants. The plants of this island have been seldom collected. Although quite well known through collections of Dr. Palmer and Professor Greene, so many of the species are endemic, that almost any collection from the island is valuable. Dr. Franceschi has several sets to dispose of and solicits correspondence.

THE QUESTION of the existence of a special membrane around the vacuole has been incidentally studied by Bokorny, who finds,[1] on treating cells with a 1 per mille solution of coffein, similar phenomena to those described by DeVries upon plasmolysis with a 10 per cent. salt solution. By the treatment with so weak a solution no plasmolysis occurs but the general protoplasm is slowly killed. The vacuole wall however remains living for a long time as shown by its reactions.

AGRICULTURAL SCIENCE, a journal of scientific merit, containing frequent articles upon botanical and other biological subjects, finds it necessary to increase its subscription price, after the close of the present year, from two dollars, the former price, to three dollars per year. This is for the porpose of enabling the publisher to keep up the high standard of quantity and quality of matter presented, which has already been attempted, but for which the financial support is not at present adequate.

A PROSPECTUS of a distribution of *Uredineæ Americanæ Exsiccatæ* by Prof. M. A. Carleton, has been issued. The fascicles are to contain fifty specimens which are to be sent out in white paper pockets, loose, with printed labels. The nomenclature will follow the best authorities, and notes on literature will find a place on the labels. Any one contributing sufficient material for four numbers of the distribution will receive a set free. The first fascicle is to be sent out about the middle of January.

THE PROCEEDINGS of the sixth annual convention of the *Assoc. of Agric. Colleges and Stations* (1892), recently distributed as Bulletin 19 of the U. S. Office of Exper. Stations, contains five botanical papers in full, viz.: On the treatment of apple scab, by E. S. Goff; A comparative test of fungicides in checking potato blight and rot, by L. R. Jones; A study of fruit decays, by B. D. Halsted; Notes on the breeding of fruits, by N. E. Hansen; and Crossing of cucurbits, by L. H. Pammel. The report of the section on botany gives a brief resumé of ten papers that were presented.

MR. G. J. PEIRCE publishes in the *Annals of Botany* for September the results of investigations on the haustoria of the Cuscutas and some other phanerogamic parasites. The author finds the haustoria to be true lateral roots modified for their special work. In all the five genera studied, except the chlorophyll-bearing *Viscum album*, the mature haustorium was provided with an axial bicollateral bundle with two strands of ducts and two of sieve tubes. The haustorium of the parasite always penetrates to the fibro-vascular ring of the host and its xylem and sieve tubes are in direct communication with the corresponding parts of the host. The finding of sieve tubes in the haus-

[1] Biolog. Cent. **13**: 271. 1893.

toria of the Cuscutas when L. Koch and others had failed to discover them is especially interesting and throws much light on the food relations of the parasite and its host.—R. A. HARPER.

A great portion of native botanic drugs are collected in the mountain portions of North Carolina, South Carolina, eastern Tennessee and Kentucky and northern Georgia. The inhabitants of these regions, many of them, eke out a precarious living collecting drugs; men, women and children take part in the work. Gathered as they are by people who are often densely ignorant it is necessary before the drugs are put upon the market for them to pass through the hands of persons who make it a business to inspect, sort and identify the goods. In the pharmaceutical laboratory of Eli Lilly & Co., of Indianapolis, Ind., a botanical department [in charge of Mr. John S. Wright] is devoted to the identification and inspection of vegetable drugs.—*Lilly's Bulletin, No.* 23.

THE SERIAL, *Studies from the biological laboratory of Johns Hopkins University*, completed the fifth volume with the October issue. A general title page and index to the five volumes accompanies the last number. The botanical articles in these five volumes are as follows: Botanical relations of Trichophyton tonsurans, by I. E. Atkinson (I, No. I.; Land plants found at Fort Wool, by N. B. Webster, (I, No. 3); Researches on the growth of starch grains, by A. F. W. Schimper (II. 353); Observations on several zoogloeæ and related forms, by William Trelease (III. 193); Formation of the so-called cypress knees on the roots of the Taxodium distichum, by J. P. Lotsy (V. 269); and On the origin and development of the stichidia and tetrasporangia in Dasya elegans, by B. N. Barton (V. 279).

IN AN EXAMINATION of fifty species of fungi belonging to widely separated groups, by W. Wahrlich of St. Petersburg, in an article on the anatomy of the cell in fungi and unicellular algæ (in the Russian language), all were found to show a continuity of the protoplasm, except Oidium lactis, not only between vegetative cells, but also between the hyphæ and spores, and between the parts of many-celled spores. The connecting bands were clearly strands of plasma. The author arrives at the conclusion that the continuity of protoplasm is present in the fungi wherever transportation of material is necessary, and that plasma granules may pass from one cell to another in this way. In an experiment with Eurotium herbariorum this happened under the eye of the observer. (Cf. BOT. GAZ. 18: 437).—D. T. M.

THE ANNUAL MEETING of the Indiana Academy of Sciences occurred in Indianapolis, Dec. 27th and 28th. There was a good attendance, and the scientific interests of the state were promoted in many ways. One half day was given to the discussion of the work accomplished by the State Biological Survey, a voluntary organization under the auspices of the Academy, and of plans for its future. The following are the titles of the botanical papers read: Some notes on a variety of Solanum Dulcamara, by R. W. McBride; Review of botanical work in Indiana with bibliography, and Our present knowledge of the distribution of pteridophytes in Indiana, by L. M. Underwood; Histology of the Pontederiaceae, by E. W. Olive; Growth in length and

thickness of the petiole of Richardia, by Katherine E. Golden; The effects of light on the germinating spores of marine algae, by M. A. Brannon; Notes on Saprolegnia, by Geo. L. Roberts; Contribution to the life history of Notothylas, by D. M. Mottier; Notes on evolution in the cacti, by J. M. Coulter; The ash of trees, Notes on the biological survey, and The stomates of Cycas, by M. B. Thomas; Poisonous influence of Cypripedium spectabile, Symbiosis in Isopyrum biternatum, and Work of the botanical division of the Natural History Survey of Minnesota, by D. T. MacDougal; Notes on sectioning woody tissues, Concerning the effect of glycerin on plants, and Notes on an imbedding material, by John S. Wright; and The adventitious plants of Fayette county, by Robert Hessler. Beside the above the presidential address by J. C. Arthur was a botanical theme. The special senses of plants.

DR. H. SCHENCK recommends[1] a method of preparing unusually large and thick sections for permanent preservation so as to be useful for lecture demonstrations and for examination with the magnifier. The sections are first thoroughly permeated by glycerin by prolonged soaking; the superfluous glycerin is drained off and the section dried with filter paper; it is then placed in an abundance of a thin solution of Canada balsam in xylol and covered with a large cover glass. The glycerin does not mix with the balsam nor is it withdrawn from the object which remains perfectly clear. The method is applicable to sections of stems of large size, such as tree ferns, palms, etc., whether woody or herbaceous. Of course suitable sizes of slides and covers have to be obtained.

IMMEDIATELY FOLLOWING the World's Congress on Horticulture at Chicago in August last, a series of meetings was held to consider the advisability of organizing a horticultural society which shall include every country of the globe. After much discussion, in which many eminent men from various parts of the world engaged, the World's Horticultural Society was organized and the election of the three general officers was held, on the 25th of August. This new society is designed, in the language of the constitution, "to promote correspondence and to facilitate exchange of plants and information between the countries of the world." This society can coördinate and extend the work of all existing societies, compile statistics, promote legislation and education, prepare correspondence directories, diffuse all the latest information from the various parts of the globe, consider means of transportation, and facilitate the exchange of varieties and every commodity in which pomologists, viticulturists, florists, vegetable gardeners, and other horticulturists are interested. The Society will probably meet occasionally at the various International Exhibitions, upon which occasions, also, it can greatly aid in procuring exhibits from all parts of the world.

[1] Bot. Cent. **54:** 1. April 1893.